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REPORT OF THE  
SECRETARY OF AGRICULTURE  
TO THE  
COMMITTEE ON AGRICULTURE  
HOUSE OF REPRESENTATIVES

COMMITTEE ON AGRICULTURE,  
NUTRITION, AND FORESTRY,  
U.S. SENATE

# Meat and Poultry Inspection 1976



U.S. DEPARTMENT  
OF AGRICULTURE

Issued May 1977

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# MEAT AND POULTRY INSPECTION 1976

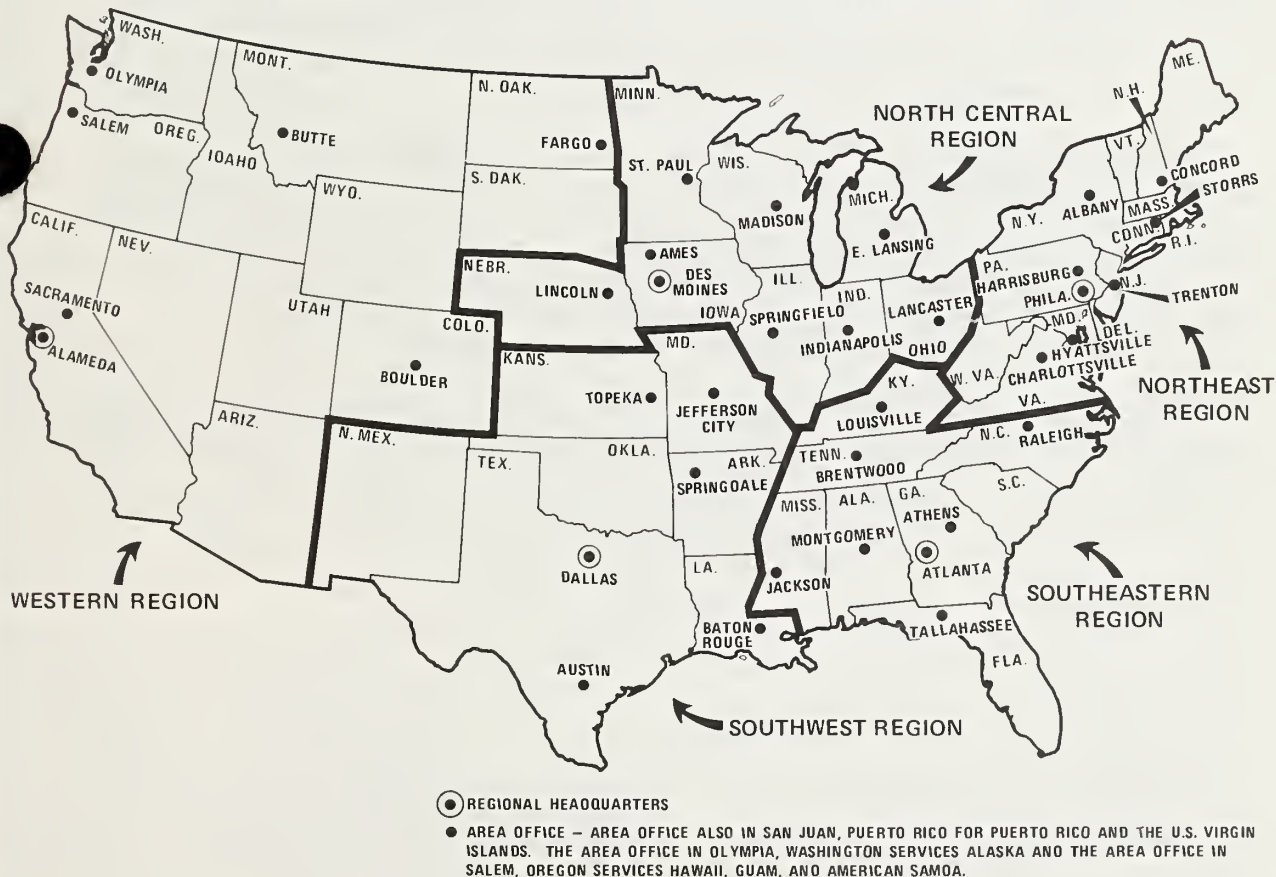
Report of the Secretary of Agriculture  
to the Committee on Agriculture, House of Representatives  
Committee on Agriculture, Nutrition, and Forestry, U.S. Senate

## FOREWORD

This report to the Committee on Agriculture of the U.S. House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the U.S. Senate is submitted as required by section 301(c)(4) of the Federal Meat Inspection Act (21 U.S.C. 661), section 17 of the Wholesome Meat Act (21 U.S.C. 691), and sections 27 and 5(c)(4) of the Poultry Products Inspection Act, as amended (21 U.S.C. 470 and 21 U.S.C. 454.)

Section 20 of the Federal Meat Inspection Act (21 U.S.C. 620) also calls for an annual report to Congress on the Foreign Meat Inspection Program. This report was submitted to Congress earlier this year.

## MEAT and POULTRY INSPECTION REGIONS and AREA OFFICES



## AUTHORITIES AND RESPONSIBILITIES

The Federal Meat Inspection Act and Poultry Products Inspection Act, as amended, require the Secretary of Agriculture to inspect the slaughter of certain domestic livestock and poultry and the processing of meat and poultry products. The primary objective of this inspection is to assure that meat and poultry products distributed to consumers are wholesome, not adulterated, and properly marked, labeled, and packaged. In carrying out this complex task the Secretary has jurisdiction from the time livestock and poultry are received at the slaughtering establishments until the finished products are distributed in commerce to consumers, or otherwise distributed subject to the Acts.

Establishments preparing meat and poultry products for sale or distribution in interstate or foreign commerce are required to have Federal inspection unless exempted under the Acts. Those doing intrastate business in certain "non-designated States" operate under State inspection programs that are required to effectively enforce requirements at least equal to those under the Federal Acts. Support is extended by USDA to State programs in the form of funds, training, and technical assistance. Federal inspection is required to be extended to intrastate operations in those "designated" States that do not develop or maintain an inspection program with requirements at least equal to those under the Federal Acts.

USDA is responsible for applying uniform standards with respect to sanitation, inspection procedures, and product labeling at all establishments under Federal inspection. It is also responsible for assessing the effectiveness of State inspection programs to assure that standards at least equal to those under the Federal Meat Inspection Act and the Poultry Products Inspection Act are being applied by the States to meat and poultry establishments under their jurisdiction.

Finally, through its Compliance Staff, USDA conducts reviews and investigations for possible violations of the meat and poultry inspection laws.

The above activities are discussed in more detail in this report.



Table 1--Federal inspection--December 31, 1976

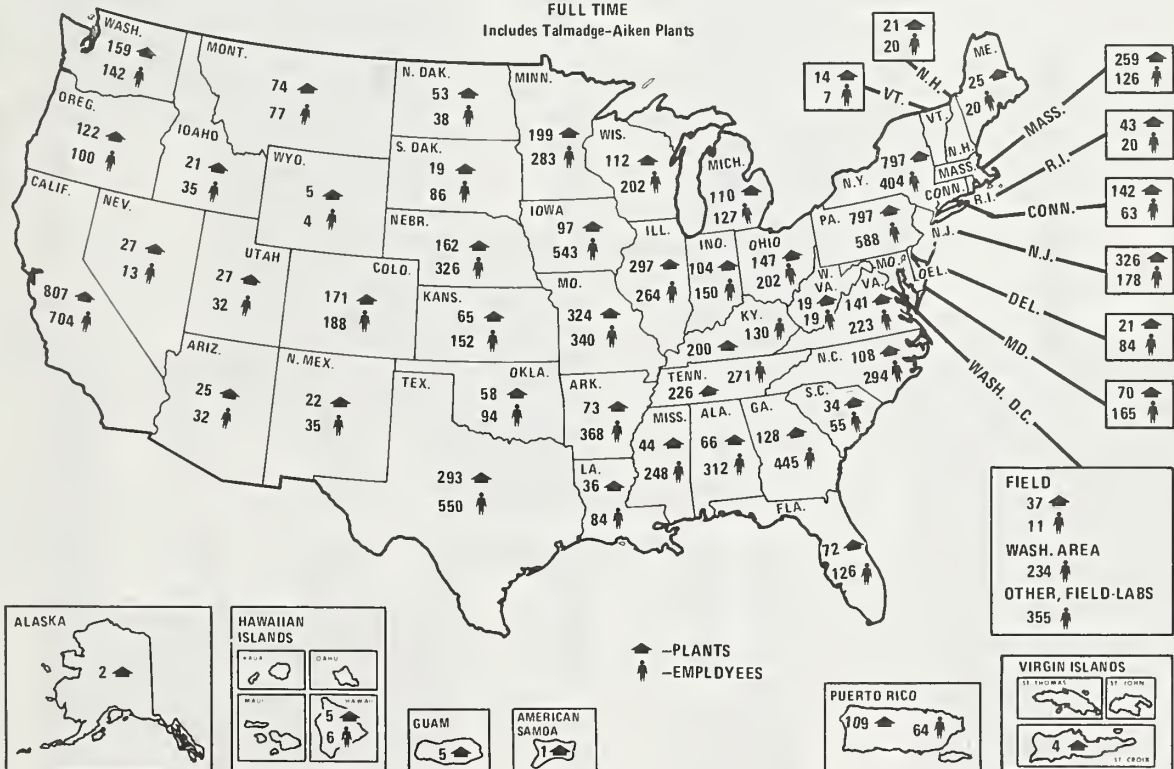
	Meat establish- ments	Poultry establish- ments	Meat/ poultry establishments	Total
Slaughtering operations only	398	247		645
Processing operations only	3,060	326	1,640	5,026
Slaughtering and processing	1,119	137	191	1,447
Total	4,577	710	1,831	7,118

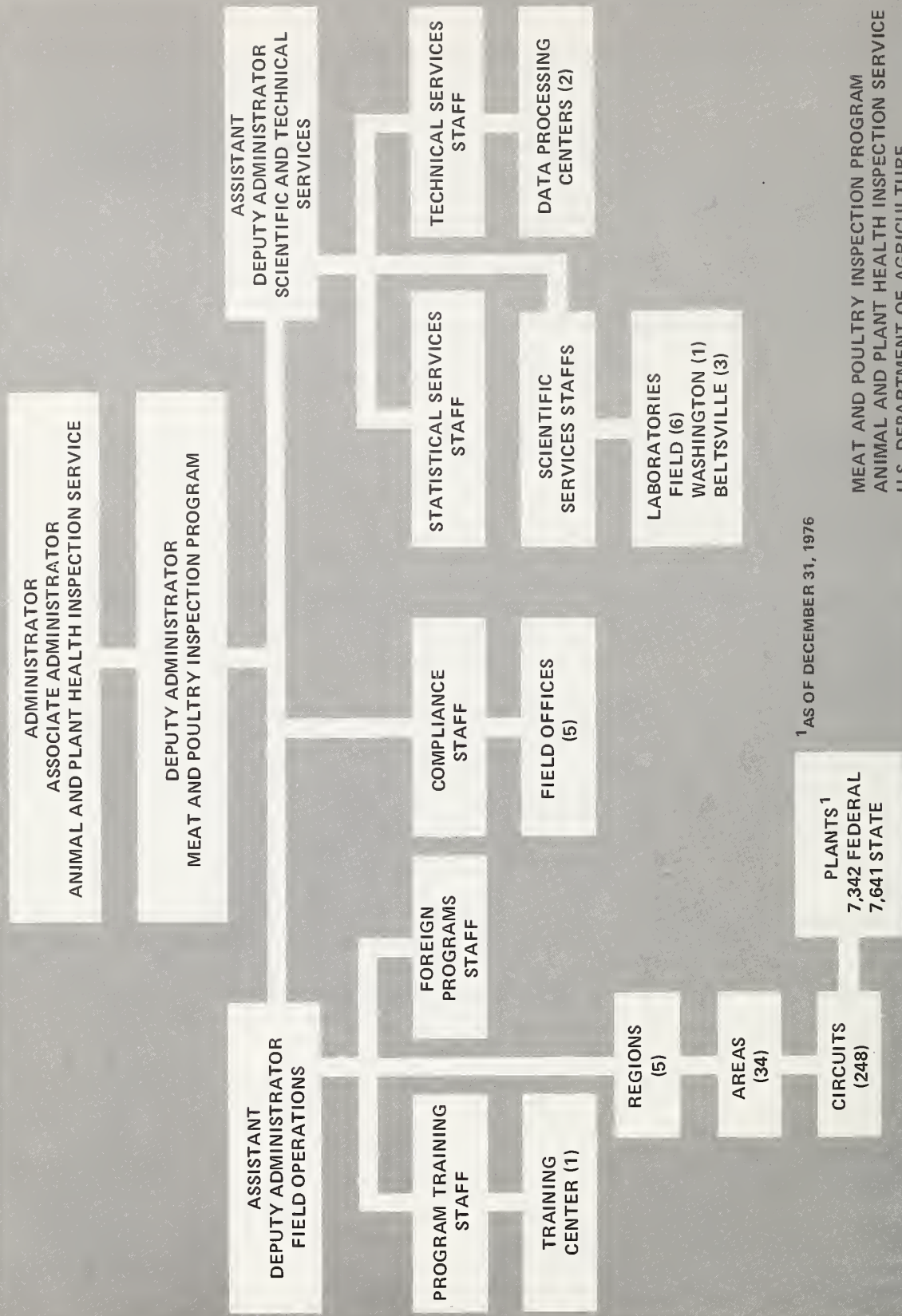
## FEDERALLY INSPECTED PLANTS and INSPECTORS by LOCATION

December 31, 1976

FULL TIME

Includes Talmadge-Aiken Plants





<sup>1</sup> AS OF DECEMBER 31, 1976

MEAT AND POULTRY INSPECTION PROGRAM  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
U.S. DEPARTMENT OF AGRICULTURE



## ORGANIZATION

Responsibility for administration of the meat and poultry inspection laws during 1976 was assigned to the Animal and Plant Health Inspection Service. The organizational structure provided for a Deputy Administrator with responsibility for the Meat and Poultry Inspection Program. The Deputy Administrator is responsible for three organizational units: Field Operations, Scientific and Technical Services, and Compliance Staff.

Field Operations, through 5 regional offices and 35 area offices, directs the field force of meat and poultry inspectors who enforce regulations in inspected establishments. It includes a Foreign Programs Staff that assesses the effectiveness of inspection programs in countries exporting product to the United States and coordinates the inspection of imported meat and poultry products at U.S. ports of entry prior to their release by the Customs Service. Field Operations also has responsibility for the training of all inspection personnel.

Scientific and Technical Services comprises a wide range of staff and support functions. These functions include the development and application of standards for inspection procedures, labels, packaging materials, plant facilities and equipment, product composition, and environmental sanitation. They also include development and application of work standards, automatic data processing, and statistical programs and analysis. Laboratory support is provided in a variety of disciplines including pathology, epidemiology, toxicology, chemistry, and microbiology. The Scientific and Technical Services Staffs are Washington-based with the exception of regionally located laboratories and data processing centers.

The Compliance Staff monitors the activities of persons and firms engaged in the distribution of meat and poultry products and takes measures to assure that laws governing these activities are understood and obeyed. The inplant compliance group conducts reviews of federally inspected meat and poultry establishments to monitor the effectiveness of the inspection program.

The size of this undertaking is extensive. During 1976, Federal inspection was provided by the Animal and Plant Health Inspection Service of this Department at 7,134 establishments (Table 2), and supervision was exercised over 7,641 establishments (Table 6) under State inspection. To provide the inspection and supervision required by the meat and poultry inspection laws, 9,600 Federal employees and 3,600 State employees were utilized.

Table 2--Federally inspected establishments by States--December 31, 1976

State or territory	Meat establish- ments	Poultry establish- ments	Meat/ poultry establishments	Total establish- ments
Alabama	26	26	14	66
American Samoa	1			1
Arizona	16	1	8	25
Arkansas	11	38	16	65
California	467	80	260	807
Colorado	133	9	29	171
Connecticut	95	8	39	142
Delaware	4	7	2	13
Dist. of Columbia	30	5	2	37
Florida	45	5	22	72
Georgia	39	39	29	107
Guam	4		1	5
Hawaii	3		1	4
Idaho	17	1	3	21
Illinois	192	14	65	271
Indiana	60	17	22	99
Iowa	68	8	21	97
Kansas	40	2	17	59
Kentucky	148	10	42	200
Louisiana	21	5	7	33
Maine	10	9	7	26
Maryland	24	14	14	52
Massachusetts	170	28	61	259
Michigan	71	10	13	94
Minnesota	71	23	105	199
Mississippi	12	18	9	39
Missouri	236	24	64	324
Montana	31		43	74
Nebraska	107	8	47	162
Nevada	4	2	21	27
New Hampshire	12	3	6	21
New Jersey	224	18	84	326
New Mexico	13		9	22
New York	551	21	225	797
North Carolina	43	26	18	87

Table 2--Federally inspected establishments by States--(Continued)

State or territory	Meat establish- ments	Poultry establish- ments	Meat/ poultry establishments	Total establish- ments
North Dakota	37		16	53
Ohio	100	14	30	144
Oklahoma	31	7	10	48
Oregon	96	8	18	122
Pennsylvania	610	73	114	797
Puerto Rico	78	4	27	109
Rhode Island	28	6	9	43
South Carolina	8	5	7	20
South Dakota	13	4	2	19
Tennessee	137	15	74	226
Texas	176	32	85	293
Utah	11	7	7	25
Vermont	10	4		14
Virginia	54	24	24	102
Virgin Islands	2		2	4
Washington	116		34	150
West Virginia	11	9	5	25
Wisconsin	58	3	38	99
Wyoming	2	16	3	21
Total	4,577	710	1,831	7,118
Talmadge-Aiken plants	160	13	35	208
TOTAL	4,737	723	1,866	7,326

# INSPECTION

Inspection falls into four general categories: ante-mortem, post-mortem, sanitation, and product processing.

## Ante-mortem and Post-mortem Inspection

Poultry and animals are examined for signs of disease or abnormality before slaughter. Following slaughter each individual carcass and its viscera are scrutinized carefully. This inspection establishes the wholesomeness of carcasses and organs passed for human consumption. Those that do not pass inspection are condemned and destroyed for human food purposes. The magnitude of the overall task can be measured by the number of animals and birds inspected in 1976--over 120 million livestock (Table 3) and 3.5 billion birds (Table 4).

Since the disposition of carcasses and parts of carcasses has major public health and economic importance, it is essential that inspectors accurately apply uniform standards. For these reasons, veterinary supervisors monitor the procedures and the work of the inspectors assigned to each establishment. Staff specialists continually review the inspection standards, and revise standards, or develop new standards as necessary to assure that inspection is carried out in an effective and efficient manner. Staff specialists conduct meetings in each region to insure that veterinary inspectors supervising the work use the same standards in making dispositions of animals, carcasses, and parts.

Table 3--Number of livestock federally inspected, 1972-1976

Species	1972 (in thousands)	1973	1974	1975	1976
Cattle	32,279	30,495	33,318	36,903	38,991
Calves	2,420	1,810	2,355	3,896	4,437
Hogs	78,736	72,262	77,071	64,927	70,457
Goats	146	110	72	49	40
Sheep & lambs	9,904	9,234	8,556	7,550	6,474
Equine	67	161	207	247	293
TOTAL	123,552	114,072	121,579	113,572	120,692

Table 4--Number of poultry federally inspected, 1972-1976

Class	1972 (in thousands)	1973	1974	1975	1976
Young chickens	2,940,310	2,915,336	2,904,727	2,927,590	3,260,340
Mature chickens	185,823	189,839	193,328	175,718	180,135
Fryer-roaster turkeys	12,737	12,973	13,901	12,276	12,627
Young turkeys	107,551	108,763	111,540	106,214	120,610
Old turkeys	1,065	1,278	1,308	956	1,098
Ducks	11,230	11,006	11,552	11,453	13,161
Geese	392	329	363	341	323
Rabbits*	940	651	718	651	779
Others	1	6	11	19	6
TOTAL	3,260,049	3,240,181	3,237,418	3,235,218	3,589,079

\*These animals were inspected under the voluntary inspection program pursuant to the Agriculture Marketing Act of 1946, as amended (7 U.S.C. 1621 et seq.)



## Sanitation

Clean establishments and equipment are essential to the production of wholesome food. If inspectors assigned to slaughtering and processing establishments find insanitary conditions, immediate correction is required. If the insanitary conditions are such that product may be adulterated, inspection is withheld and all operations cease. If after appropriate notice a plant fails to take action to eliminate such insanitary conditions, inspection service may be withdrawn.

Meat and poultry establishments sanitation practices and facilities continue to be a major area for Program concern. The microbiological approach is being emphasized by the Program as a more objective method. Participation by establishments is encouraged and assistance in developing programs is given. There are now more than 130 establishments with approved or pending bacteriological monitoring programs.

## Product Processing

Processed and fabricated meat and poultry products are continuing to increase in variety and complexity (Table 5), demanding specialized inspection skills. Emphasis on sound plant quality control procedures has shown good results.

The industry exhibited continued interest for approved process control systems to supplement lot inspection or traditional inspection methods. Approximately 300 process control procedures were reviewed and approved. This continued activity indicates a positive attitude of industry and the regulatory agency concerning product compliance, responsibility, cost return to industry, inspection cost to MPI, and better utilization of inspection time.

Table 5--Processed meat and poultry products inspected, 1972-1976

Product	1972 (million pounds)	1973	1974	1975	1976
Meat products	52,954	50,552	54,259	51,663	58,639
Poultry products	19,516	22,035	18,723	17,812	22,759
TOTAL	72,470	72,557	72,982	69,745	81,398

<sup>1/</sup>These data represent the total weight of finished products including the weight of nonmeat ingredients. In addition, there is some multiple counting of complex products which require inspection at intermediate steps in production.

# STATE INSPECTION

## FEDERAL - STATE COOPERATIVE PROGRAM

As of December 31, 1976, 33 States were conducting meat inspection programs, and 26 States were conducting poultry inspection programs. There were a total of 7,641 intrastate meat and poultry establishments under State inspection (Table 6).

The Secretary is required to designate States under section 301(c) of the Federal Meat Inspection Act that do not develop or effectively enforce requirements at least equal to requirements under the Act. Thirty days after designation, requirements of the Act apply to intrastate operations and transactions in the State. Similar provisions are contained in section 5(c) of the Poultry Products Inspection Act. Pursuant to these provisions, this Department has assumed inspection responsibilities for former State inspected meat establishments in 17 States and 3 territories, and for inspection of former State inspected poultry establishments in 24 States and 3 territories (Table 7). The three territories are Puerto Rico, the Virgin Islands, and Guam.

State programs are reviewed regularly to determine their compliance with the Federal inspection Acts. An evaluation system is in effect which requires a random selection of establishments to be reviewed to determine compliance with 7 basic inspection requirements. The requirements are: ante-mortem and post-mortem inspection; reinspection; sanitation; water supply; sewage and waste material control; pest control; and condemned and inedible material control.

In CY 1976, two States were designated under the Federal Meat Inspection Act and two States were designated under the Poultry Products Inspection Act. These States chose to discontinue their programs because of its cost to the States. USDA expects that other States may be terminating their programs in order to use State revenues for other purposes. Increased incentive is needed for the States to continue conducting cooperative programs.

This trend away from State participation has had a decided effect on the Federal operations. During the 9-year period, fiscal years 1968 through 1976, Federal Meat and Poultry Inspection employment increased 36 percent, the number of establishments under direct Federal inspection increased by 104 percent, and Federal costs, including grants to States, rose by 207 percent. This growth in federally inspected establishments and personnel can largely be attributed to the designation of the States pursuant to the law.

Whenever the Department assumes the inspection program from a State, the need for sufficient Federal employees to inspect the former State establishments must be met. To utilize the experience of State inspectors at the time of designation, the inspectors are given the opportunity to apply for employment with the Federal meat and poultry inspection program. However, each employee must apply for and meet the minimum requirements for Federal employment in accordance with the Civil Service Commission requirements. The Federal appointment grade is determined by the level of duties and responsibilities of the position and individual applicant's qualifications and length of experience. The percentage of former State employees who have applied for and accepted Federal appointments in designated States represents 67 percent of the Federal inspectors hired in the last 2 years (Table 8).

A degree of increased efficiency can sometimes be achieved by including former State inspected establishments in the assignment of Federal inspectors already working in the area. Overall, however, inspector productivity decreases in designated States because such establishments are smaller and farther apart.

Table 6--State Program Data, December 31, 1976

State	Establishments (meat and poultry)	Exempt	Total	Personnel Full time	Personnel Part time	Total	Budget FY 1976 (Inc. Federal Funding 000)
Alabama	114	75	189	74	5	79	\$1,256
Alaska	15	4	19	5	8	13	426
Arizona	73	28	101	33	2	35	575
Arkansas	97	71	168	76	28	104	1,257
Delaware	12	5	17	12	3	15	202
Florida	316	80	396	177	0	177	2,375
Georgia	187	70	257	139	0	139	2,531
Hawaii	74	0	74	51	0	51	936
Idaho	69	83	152	51	36	87	919
Illinois	589	33	622	300	190	490	5,256
Indiana	178	93	271	123	7	130	2,252
Iowa	202	262	464	53	0	53	1,045
Kansas	188	113	301	101	104	205	1,653
Louisiana	214	72	286	155	22	177	1,956
Maine	27	48	75	10	4	14	198
Maryland	67	22	89	55	4	59	1,112
Michigan	364	51	415	184	0	184	4,142
Mississippi	102	35	137	71	0	71	1,084
New Hampshire	19	24	43	9	6	15	146
New Mexico	45	18	63	18	6	24	289
New York	22	19	41	12	21	33	513
North Carolina	258	129	387	176	25	201	2,539
Ohio	474	190	664	227	4	231	4,044
Oklahoma	164	146	310	97	50	147	1,307
Rhode Island	35	2	37	7	1	8	261
South Carolina	137	0	137	88	23	111	1,298
South Dakota	97	60	157	35	0	35	403
Texas	541	189	730	364	0	364	5,569
Utah	46	53	99	31	48	79	567
Vermont	25	29	54	14	3	17	314
Virginia	41	110	151	72	2	74	1,298
West Virginia	50	58	108	43	0	43	867
Wisconsin	337	220	557	121	4	125	2,368
Wyoming	37	33	70	13	16	29	277
Totals	5,216	2,425	7,641	2,997	622	3,619	51,235

Table 7--Federal Intrastate Inspection and Dates of Assumption  
by USDA of State Programs

State	Meat	Poultry
Arkansas		1-2-71
California	4-1-76	4-1-76
Colorado	7-1-75	1-2-71
Connecticut	10-1-75	10-1-75
Georgia		1-2-71
Idaho		1-2-71
Kentucky	1-14-72	7-28-71
Maine		1-2-71
Massachusetts	1-12-76	1-12-76
Michigan		1-2-71
Minnesota	5-16-71	1-2-71
Missouri	8-18-72	8-18-72
Montana	4-27-71	1-2-71
Nebraska	10-1-71	7-28-71
Nevada	7-1-73	7-1-73
New Jersey	7-1-75	7-1-75
New York	7-16-75	
North Dakota	6-22-70	1-2-71
Oregon	7-1-72	1-2-71
Pennsylvania	7-17-72	10-31-71
South Dakota		1-2-71
Tennessee	10-1-75	10-1-75
Utah		1-2-71
Washington	6-1-73	6-1-73
West Virginia		1-2-71



Table 8--Meat and Poultry Inspection Program, 1976

State	Position and Personnel Comparisons (Full-time or full-time equivalent)			Percentage of State Employees to Total After Designation
	Positions Prior to Designation	Positions After Designation	State Employees Hired	
North Dakota	6	29	2	0.7
Montana	23	37	10	27.0
Minnesota	38	71	5	0.7
Nebraska	55	68	35	52.0
Kentucky	90	64	54	84.0
Oregon	65	60	51	85.0
Pennsylvania	210	288	135	47.0
Missouri	130	115	109 <sup>2/</sup>	94.0
Washington	49	50	30	60.0
Nevada	8	9	3	34.0
Colorado	41	41	23	56.0
New Jersey	57	40	33	83.0
New York	265	177	135	76.0
Connecticut	38	31	23	74.0
Tennessee	79	60	51	85.0
Massachusetts	40	28	18	64.0
California	315 <sup>1/</sup>	257	214	83.0

<sup>1/</sup> Includes 108 full-time equivalent State employees conducting inspection under the T-A agreement.

<sup>2/</sup> Includes 6 part-time.

## USE OF THE TALMADGE-AIKEN ACT

The Talmadge-Aiken Act (T-A) authorizes the Secretary of Agriculture to enter into cooperative arrangements involving regulatory, marketing inspection and other functions of USDA, with State Departments of Agriculture and other State agencies under specified circumstances. It is the intent of this Act to achieve, through closer State-Federal coordination, greater program effectiveness and economy by avoiding duplications of functions, facilities and personnel. This Act has been, and is being used as a means to carry out Federal meat and poultry inspection with State employees. Under this Act the Secretary of Agriculture is responsible for the conduct of Federal inspection in these establishments. There is no variance in the standards for those establishments operating under a T-A inspection agreement since they are, in fact, federally inspected establishments. At the end of 1976, 208 plants were receiving Federal inspection under T-A authority (Table 9).

Table 9--Federal establishments inspected by State employees  
under the Talmadge-Aiken Act, December 31, 1976

State	Meat establish- ments	Poultry establish- ments	Combination meat and poultry establishments	Total establish- ments
Alaska	1		1	2
Arkansas	7		1	8
Delaware	7		1	8
Georgia	19		2	21
Hawaii			1	1
Illinois	19	2	5	26
Indiana	3		2	5
Kansas	2	1	3	6
Louisiana	3			3
Maryland	11	3	4	18
Michigan	16			16
Mississippi	4		1	5
North Carolina	17	1	3	21
Ohio	3			3
Oklahoma	7		3	10
South Carolina	11	1	2	14
Utah	2			2
Virginia	28	5	6	39
TOTAL	160	13	35	208

## SURVEILLANCE AND COMPLIANCE ACTIVITIES

The Compliance Staff monitors the activities of persons and firms engaged in the preparation and distribution of meat and poultry products to see that laws governing these persons and firms are understood and obeyed. The Compliance Staff is also responsible for documenting alleged violations of law; for initiating detention actions to control adulterated, misbranded, and uninspected product found in distribution channels; for conducting systematic reviews of all federally inspected establishments and for initiating and coordinating actions with respect to withdrawals of inspection from establishments.

In 1976, periodic surveillance continued of persons and firms engaged in the meat and poultry and allied industries (wholesalers, brokers, animal food processors, renderers, warehouses).

In 1976, the Compliance Staff documented 858 alleged violations of the meat and poultry inspection Acts. Some of the alleged violations involved more than one individual or firm. Minor violations are closed with letters of warning under the authority of the Acts when the Secretary believes that the public interest will be adequately served thereby.

In 1976, 74 cases were referred to appropriate United States attorneys, through the Office of the General Counsel, with a recommendation either for the prosecution or closing the case with a warning letter. Eight prosecutions were successfully completed. Two cases involved the unauthorized use of the marks of inspection. One involved the falsification of an application for inspection, and one impersonating a Federal meat inspector. Others involved the sale and transportation of nonfederally inspected meat product in commerce and the slaughter and preparation of nonfederally inspected meat product in the designated Commonwealth of Puerto Rico.

In 1976, 22 administrative actions were pending, and 5 additional administrative actions were initiated for the purpose of withdrawing Federal inspection from official establishments because of convictions against the establishments or persons responsibly connected with the establishments. Four of the actions initiated in 1976 were based on convictions for bribery, and one was based on convictions for making and forging warehouse receipts.

Compliance officers completed detention actions involving almost 12.5 million pounds of product. The product is normally brought into compliance or, if unwholesome or otherwise adulterated, destroyed for food purposes. If voluntary dispositions are not made, seizures and dispositions by Federal courts are necessary. In 1976, five seizures involving 142,090 pounds of product were made. The Compliance Staff participated in monitoring four recalls involving over 1,917,638 pounds of meat and poultry products.

The Compliance Staff conducted 2,725 reviews of the adequacy of inspection in federally inspected establishments (Table 10). These reviews are conducted on a systematic basis with additional followup reviews, as necessary, based on the seriousness of deficiencies found in previous visits. Reports of deficiencies are given to program managers for appropriate actions at the local level and for long-range improvements nationwide.

The Compliance Staff continued cooperative Federal-State development and training programs for intrastate compliance activities. Cooperative Work Plan agreements continue in effect in 27 States and one Territory.

## IMPORTS AND EXPORTS

Activities of the 1976 foreign meat and poultry inspection programs were reported to Congress in March 1977.

The Foreign Programs Staff continued work to assist in the export of meat and poultry to other countries. Ten U.S. meat plants were certified to prepare meat products for export to the Federal Republic of Germany. This required substantial changes in the method of operation at these plants. Also, a veterinarian representing the German Ministry visited several U.S. poultry plants certified to export to the Federal Republic of Germany and reviewed them for compliance with German requirements.

The Republic of China (Taiwan) was added to the list of countries eligible to export meat products to the United States.

The United States livestock industry experienced an outbreak of hog cholera in the Northeastern States. Four States were affected by the 1976 outbreak, and as a result pork exports to certain Caribbean countries were interrupted. This recent outbreak further delayed U.S. fresh pork exports to the United Kingdom because the United Kingdom requires freedom from hog cholera in the continental United States for a 12-month period as a condition for exporting fresh pork products.



Table 10--Compliance Staff activities 1972-1976

Type of action	1972	1973	1974	1975	1976
Compliance reviews conducted	28,844	33,880	43,163	42,786	44,367
Apparent violations detected	669	789	845	905	858
Letters of warning issued	807	868	955	990	1,105
Cases referred to Department Office of Investigation	53	52	51	60	25
Cases referred to Department Office of General Counsel	54	95	79	89	122
Cases referred to Department of Justice by General Counsel	26	40	38	58	74
Cases prosecuted by Department of Justice	11	11	14	12	8
Detention actions on product	640	793	769	931	955
Establishments reviewed		806	1,393	2,793	2,725

## STAFF ACTIVITIES

Inspectors in the establishments are supported by a Washington, D.C., unit known as Scientific and Technical Services which provides support functions essential for program operations. This unit has three basic divisions: Scientific Services, Technical Services, and Statistical Services.

### Scientific Services

This staff provides analytical and consultative services in support of the national meat and poultry program and to State and other Federal agencies in the fields of chemistry, microbiology, pathology, toxicology, epidemiology and residue evaluation. The analytical services are provided by the Washington, D.C.-Beltsville Staff Laboratory, National Residue Laboratory in Peoria, Illinois; Western Multidisciplinary Laboratory in San Francisco, California; Eastern Multidisciplinary Laboratory in Athens, Georgia; and chemistry laboratories in Omaha, Nebraska; Kansas City, Kansas; and St. Louis, Missouri. Analytical support is also provided through contracts with State laboratories in Kentucky and New York. The consultative services are provided by four Staffs: Chemistry; Microbiology; Pathology, Toxicology, and Epidemiology; and Residue Evaluation and Planning.

#### Chemistry

The Chemistry Staff has introduced new instrumentation into selected field laboratories. The additional instrumentation will be used for trace element analyses, amino acid determinations, nitrosamine detection, and for enhancement of the surveillance of drug residues.

The Chemistry Staff has provided analytical support to the Program in determining the health and safety aspects of mechanically deboned meat (MDM). All data generated from this project are to be used by an ad hoc interagency committee established to study the health and safety aspects of mechanically deboned meat and rendered meats. A similar study is being conducted on mechanically deboned poultry.

The number of analytical procedures for drug residues has been increased as methods for detection of Ipronidazole, Robenidine, Thiabendazole,

and Dimetridazole were introduced into the field laboratories for monitoring purposes. The FDA-MPI Joint Committee on Methodology for Drug Residues is playing an active role in identifying needs and developing methodology with respect to veterinary drug residues in meat and poultry for human food, including such residues as (1) DES, (2) antibiotics, (3) tetracyclines, (4) chloramphenicol, and (5) sulfonamides. In 1976, a total of 92,760 samples were analyzed by Federal laboratories, 24,773 by State laboratories, and 7,000 by Certified laboratories.

### Microbiology

The microbiology section of the Multidisciplinary laboratories in Athens, Georgia, and San Francisco, California, and the main microbiology laboratory in Beltsville, Maryland, provided analytical services to field personnel and other Staffs within the Meat and Poultry Inspection Program. In 1976, 17,543 microbiology samples were analyzed and a total of 88,271 tests were conducted on these samples. The number of samples examined was 5.9 percent less than in 1975; however, the number of tests performed in 1976 was about one percent greater. These changes reflect an increasing need for more tests per sample.

### Pathology, Toxicology, and Epidemiology

The Pathology, Toxicology, and Epidemiology Staff is responsible for consultation and laboratory services required for the diagnosis of the infectious and toxic diseases as well as other disease conditions that may occur in food animals that are presented for slaughter in abattoirs; for receiving reports and investigating human health hazards or actual meat borne disease outbreaks; and for the investigation of diseases that may be acquired by humans through the handling or consumption of meat. This includes diseases of animals that may be transmitted to humans, diseases that may be transmitted from human to human through meat, and diseases that may be transmitted to humans from the environment through meat. Investigations are for the purpose of appraising the nature of such hazards and providing counsel on how best to protect consumers of meat products from them. As an adjunct to these activities the Staff contributes its knowledge in this area to the continuing education of program veterinarians through the issuance of bulletins and through lectures to groups.

The project for the development of an implant system for detecting trichinosis and other infectious and toxic diseases at post-mortem inspections through use of serological tests advanced significantly in 1976. A serological machine has been evaluated, and two have been purchased by the Staff for use in an extensive field trial.

The Pathology Group provided diagnostic and consultative pathology service to post-mortem inspection throughout the program. During 1976,

3,810 diagnostic cases were completed and 630 consultations were made by pathologists at laboratories in Beltsville, Maryland; Athens, Georgia; and San Francisco, California.

The Pathology Group provides scientific support to Meat and Poultry Inspection in the area of animal disease. The Group is conducting investigations in swine tuberculosis, bovine cysticercosis, mechanically deboned meat, and squamous cell carcinoma in poultry, and is providing histopathology support for a hexachlorobenzene toxicity study.

In 1976 the Epidemiology and Toxicology Staff received 345 reports of alleged actual or potential meatborne disease health hazards, of which 196 involved human illnesses. Several of the illness incidents included large numbers of persons. With each episode the staff worked closely with other health agencies to determine if the illnesses were directly related to inspectional deficiencies. Although the illness incidents included salmonellosis, staphylococcus, food poisoning and one case of botulism, epidemiological investigations indicated that all were the result of product mishandling.

#### Residue Evaluation and Planning

The activities of this Staff reflect the variety of challenges that are inherent in attempting to control violative tissue residues at the last point possible prior to the meat being consumed. Rarely do live animals or carcasses show overt signs of lesions that are pathognomonic for the presence of dangerous levels of residues. Their detection and measurement requires the use of analytical methods for which precision and detection capabilities were not normally available as little as 10 years ago. It has been learned that detection of violative levels at the time of slaughter is not sufficient to prevent recurrences. Prevention and correction of these occurrences requires identification of the cause and informing the producers so that they can take corrective action. To meet this requirement, contacts with livestock and poultry industry groups have been expanded.

The poultry industry, during the past 2 years, has been developing self administered residue monitoring programs to assure compliance with tolerances. This effort has resulted in a system of communication and reaction that assures rapid correction of a problem. This total residue effort has now progressed to the point that joint USDA-producer quality assurance programs for residues are possible. It appears this can be done through information exchange without increased paperwork.

Due to public interest we have continued to monitor Michigan dairy cows for polybrominated biphenyl (PBB) residues. Of the 800 cows sampled, only three contained over 0.3 ppm PBB's and the last one of these was in September.



The total residue program generated 771 individual cases which required further regulatory followup. The major residue problems involved sulfonamide residues in swine, antibiotic residues in calves, and pesticide residues in cattle. The poultry industry had a significantly lower residue incidence compared to meat but had some problems with sulfonamides, antibiotics, and robenidine.



Table 11--Residue Testing - 1976  
Domestic Monitoring Program

Residue	Red meat samples analyzed	Poultry samples analyzed
Chlorinated hydrocarbon pesticides	3,021	1,715
Antibiotics	2,327	655
Organophosphorus compounds	2	30
Arsenic	978	1,036
Trace Metals	573	521
Hormones	1,935	---
Sulfa drugs	2,529	1,278
Drugs, general	1,024	1,159
TOTAL	12,389	6,394

## Statistical Services

It is important for inspection procedures to be conducted as economically as possible, yet provide for accurate and objective evaluation of inspection results.

The Statistical Services Staff provided consultative services to the various elements of the Meat and Poultry Inspection Program. As in the past, its major impact has been in the designing of product acceptance, sampling procedures, and product standards studies (14 projects). The Staff continues to be active in dealing with the problems of chemical residue determination (19 projects). Additionally, the Staff provided statistical evaluation of published articles and proposed experimental procedures (22 projects). Other activities of the Staff include management data analysis and mathematical and statistical computing.

## Technical Services

This staff provides technical and consulting support to the National Meat and Poultry Inspection Program. The staff operates in a diversity of areas; Inspection Standards and Regulations; Labels and Packaging; Systems Development and Sanitation; Plant Facilities and Equipment; Product Standards; and Work Standards and Data Services. All program publications and issuances are handled by the Issuance Coordination Staff.

### Systems Development and Sanitation

The boneless meat reinspection procedures (Meat and Poultry Inspection Manual) were revised to include boneless pork reinspection. This revision followed an in depth study of this operation which was in response to a request from the affected industry. Additional studies have been conducted to review unique production methods connected with boneless pork production. Handling practices were noted and methods of inspection were developed and included in a proposed revision of the boneless meat reinspection procedure.

Plant procedures for water reuse and use of chemical disinfectants in lieu of 180 F. water are being evaluated with the goal of improved efficiency and conservation without loss of good sanitation. Broad guidelines for the reuse of water and for evaluating chemical disinfectants have been developed.

## Work Standards and Data Services

This staff is responsible for the work standards and automated data processing activities of the Meat and Poultry Inspection (MPI) program. These activities include the development and application of work standards, maintenance of the workload based manpower forecasting and control system, and formulation of indices for measuring productivity trends. This staff also provides for planning and implementation of data services applications, assists with computer systems design, and operates the various data processing facilities. In addition, the staff prepares and publishes statistical reports and management data summaries used by MPI managers, USDA activities, Government agencies, research organizations and industry at large.

Some highlights of the past year are: development of new work measurement standards for determining staffing requirements for processing inspection which occupies one third of the field operation work force; redesigning and reprogramming of the computerized MPI slaughter and processing inspection data systems; and, installation of advanced data entry and processing systems.

## Product Standards

A final rule defining "Country," "Country Style," or "Dry Cured" hams and pork shoulders has been published. The standards will become effective July 1, 1978. This action culminates many years of effort to coordinate widely divergent practices and to bring together acceptable procedures to assure the integrity and traditional characteristics of these products. A significant feature to producers and consumers is that products conforming to the prescribed standards can be distributed, marketed, and stored without refrigeration.

Proposed standards for cooked poultry sausages were published and caused considerable interest and a large volume of comments. Those comments are still being studied but the major contention is whether names such as frankfurters and bologna, formerly restricted to red meat cooked sausages, are appropriate for poultry products. Another question is whether standards prescribed for meat sausages should be applied to poultry sausages, particularly in regard to the permitted fat level.

Proposed regulations were prepared to allow for the combination of meat cuts with non-meat proteins. These would consist of cured pieces of meat such as hams, pork loins, and corned beef combined with non-meat protein products such as isolated soy protein, wheat protein concentrate, yeast, non-fat dry milk, and dried whey. Nutritional parameters for the non-protein components are being established in cooperation with the Food and Drug Administration. According to the proposal, the final products would comply with minimum protein and maximum moisture levels to assure their nutritional adequacy. Also, product names would be descriptive and declare the minimum percentage, by weight, of the meat ingredient, such as "60 percent ham."

Table 12--Establishment facilities and equipment reviewed for compliance with sanitary standards, 1972-1976

Activity	1972	1973	1974	1975	1976
Drawings	3,468	4,064	3,491	3,267	3,981
Equipment Units	1,149	990	538	496	951

Table 13--Product labels reviewed, 1972-1976

Activity	1972	Per- cent	1973	Per- cent	1974	Per- cent	1975	Per- cent	1976	Per- cent
Labels processed	181,898		172,281		127,415		127,642		125,994	
Labels not approved	19,851	10.5	13,522	7.6	6,428	5.1	8,794	6.8	9,712	7.7

## TRAINING

Both poultry and meat inspection training are conducted at a single central facility located in Fort Worth, Texas. Formal lectures and laboratory demonstrations are the primary method of training at the Fort Worth Training Center; however, an audiotutorial learning center has been established in one room as a pilot project. Audiovisual teaching machines have been supplied to the field offices. As programs and materials are proven through the learning center in Fort Worth, they will be made available to the field locations. This offers training for smaller units of time and is directed to more specific needs. Increased efficiency at reduced cost should be the end result.

The major effort of the training development staff has been devoted to the design, production, and evaluation of self-instructional training units for field personnel. At present, over 25 units (self-instructional lessons and guides) are in the development stage. These units are representative of a variety of media (printed publications, filmstrips, slides, and videotape) and cover a broad range of job skills for both inspectors and veterinarians.

Table 14--Personnel Training During Calendar Year 1976

	Veterinarians	Inspectors	Other
At training centers:			
Federal.....	401	1,248	2
State.....	16	18	0
Foreign.....	1	0	0
Total.....			1,686
At work location:			
Federal.....	243	240	0
State.....	29	30	0
Other (Correspondence English)			450
(Correspondence Math) ..			52
Total.....			1,044



## OTHER DEVELOPMENTS

### Salmonella Advisory Committee

In November 1975, a Charter was approved by the Secretary of Agriculture to establish a Salmonella Advisory Committee. The objective of the Committee is to find ways to reduce the incidence of salmonella in humans, animals, and poultry. Three full Committee meetings were held in 1976, beginning with an organizational meeting on February 25, at which time the group chose to work in six subcommittee areas: (1) Feeds and Feed Ingredients, (2) Processors and Distribution, (3) Breeder and Hatchery, (4) Production, (5) Consumer Education, and (6) Research. Recommendations for the final Committee report will be made by the subcommittees.

### Codex Alimentarius

The Codex Alimentarius Commission held its 11th meeting in Rome in April 1976. During this meeting the Commission considered position papers submitted by the United States objecting to two provisions in the draft code of hygienic practice for fresh meat. The Commission satisfactorily resolved the U.S. objections and then adopted the code as a recommended international code of practice. As it now stands, the Program agrees, in general, with the provisions of the recommended code of practice for fresh meat.

The Codex Committee on Processed Meat Products met in Copenhagen, Denmark, November 29 to December 3, 1976. Standards for cooked cured hams, cooked cured pork shoulders, and cooked cured chopped meat were agreed upon and submitted to the Commission for adoption as recommended standards. The Committee also agreed to distribute to member countries for comments the first draft of a standard for mechanically deboned meat. In other action, it was decided to ask the Commission to extend the Committee's authority to develop standards for poultry products. It was suggested that consideration be given to changing the name of the committee to "Processed Meat and Poultry Products."

For future committee work, the U.S. delegation undertook the task of preparing a paper on the hygienic and microbiological requirements for dry and semi-dry sausages.

### Expert Panel on Nitrites, Nitrates, and Nitrosamines

The Secretary's Expert Panel has met nine times this year in order to evaluate research on the use of nitrites and nitrates in cured meats. The

hazards presented by the use or nonuse of these substances are the subjects of discussion. Nitrites combine with secondary and tertiary amines to form nitrosamines, a class of chemicals many of which are highly carcinogenic. Their possible formation in cured meats and their effect upon humans is a difficult one to assess. Leading researchers differ sharply in their evaluation of the amounts which would be necessary to produce tumors in humans.

On the other hand, it is an accepted fact that nitrite plays a role in its ability to forestall toxin production by *Clostridium botulinum*, the most deadly of all food poisoning organisms.

To date, the Panel has made three recommendations for changes in the regulations for nitrite and nitrate usage in meats. These were incorporated into a proposed rulemaking. A final rule is now being considered. The Panel has also evaluated the research done by a joint industry-Government group and deem the findings meaningful in terms of nitrosamine reduction, although it recommends continuing research aimed at total elimination of nitrosamines. The role of nitrite itself, insofar as in vivo formation of nitrosamines is concerned, is also being investigated.

### Mechanically Deboned Meat

The product from beef, pork, and sheep carcasses is obtained by the use of approved equipment after most of the meat has been manually removed. In the case of beef, an additional 13 to 16 pounds of meat can be obtained from each carcass. The process, therefore, provides a source of meat which otherwise would be diverted into byproducts. Mechanically deboned meat is in the form of a paste which can be used in processed meat products such as frankfurters and bologna. A similar process was adopted in the seafood industry about 20 years ago and in the poultry industry more than 6 years ago.

Consumerists argued that the product contains pulverized bone which could be an irritant to the digestive tract. It was also contended that increased calcium intake from the pulverized bone may cause sensitivity in some people. Nutritionists, however, are generally of the opinion that many people have diets significantly low in calcium and that the increased bone, which supplies calcium, is beneficial rather than hazardous.

A recent court decision resulted in a suspension of the production of inspected mechanically deboned meat and products thereof. The court also required an evaluation of mechanically deboned meat, and an ad hoc expert panel of government scientists was assembled. To provide a data base for use by the panel, samples of mechanically deboned meat were obtained from producers in all areas of the country. These were analyzed for problem substances such as lead, flouride, cadmium, strontium-90, and cholesterol, as well as essential nutrients such as calcium, zinc, iron, and phosphorus. The panel is at present studying the data obtained and will soon make its recommendations concerning the healthfulness and safety of mechanically deboned meat.





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